

WHAT IS CLAIMED IS:

1. An apparatus at a node in a network comprising:  
at least one virtual interface (VI) work queue;  
a channel adapter coupled to the VI work queue, the channel adapter to interface the host to a switched fabric;  
an emulation driver coupled to the channel adapter, the emulation driver mapping a legacy physical address to a local physical address of a remote node of a local network, the channel adapter mapping the local physical address of the remote node to a VI channel to communicate with the remote node.
2. The apparatus of claim 1 wherein the local physical address of the remote node is embedded or provided within the legacy physical address of the remote node.
3. The apparatus of claim 1 wherein the legacy physical address comprises a MAC address for use in an existing or legacy network.
4. The apparatus of claim 1 wherein the legacy physical address comprises a IEEE 802.3 Ethernet MAC address.
5. The apparatus of claim 1 and further comprising a protocol stack coupled to the emulation driver, the protocol stack implementing a legacy

protocol and mapping a network address to a legacy physical address for each of a plurality of nodes.

6. A node apparatus comprising:

a channel adapter to interface the host to a switched fabric;

an emulation driver coupled to the channel adapter, the emulation driver mapping a first physical address of a remote node to a second physical address of the remote node, the channel adapter mapping the second physical address of the remote node to a channel to communicate with the remote node, wherein the second physical address is embedded within the first physical address.

7. The apparatus of claim 6 wherein first physical address comprises a legacy or global physical address, and wherein the second physical address comprises a local physical address.

8. The apparatus of claim 7 wherein the legacy physical address comprises a MAC address for use in an existing or legacy network.

9. The apparatus of claim 7 wherein the legacy physical address comprises a IEEE 802.3 Ethernet MAC address.

10. The apparatus of claim 7 wherein the local physical address can be used by the node apparatus for communication with other nodes on the local network.

11. The node apparatus of claim 6 and further comprising a VI work queue pair to establish a VI channel with the remote node of the local network.

12. The apparatus of claim 6 wherein the channel adapter comprises an ATM NIC for interfacing to an ATM network.

13. The apparatus of claim 6 wherein the channel adapter comprises a host channel adapter.

14. A method comprising:

using a single ARP protocol over a network to determine a first physical address to a network address correspondence for a node of the network and to determine a first physical address to a second physical address correspondence for the node in the network, without use of a specialized protocol to determine the first physical address to a second physical address correspondence.

15. The method of claim 14 wherein the using comprises:

using a single ARP protocol over a network to determine a first physical address to a network address correspondence for a node of the network;

determining a second physical address of the node based on the first physical address.

16. The method of claim 14, wherein the second physical address is embedded or provided within the first physical address for the node.

17. The method of claim 14 wherein the first physical address comprises a legacy or global physical address, while the second physical address comprises a local physical address.

18. The method of claim 17 wherein the legacy physical address comprises a MAC address for use in an existing or legacy network.

19. The method of claim 17 wherein the legacy physical address comprises a IEEE 802.3 Ethernet MAC address.

20. The method of claim 17 wherein the network address comprises an (Internet Protocol) IP address.

21. A method comprising:  
obtaining a local physical address for a first node of a network;  
obtaining a legacy or global physical address for the first node based on the local physical address of the first node;

obtaining a local physical address for one or more other nodes in the network;

establishing a connection-oriented VI channel between the first node and each of the one or more other nodes in the network based on local physical addresses of the other nodes;

using a legacy protocol to broadcast a request message over each of the established VI channels to obtain a network address of the first node.

22. The method of claim 21 and further comprising:

using the legacy protocol to obtain a global physical address corresponding to a network address of a selected one of the other nodes;

determining the local physical address based on the global address of the selected one of the other nodes.

23. The method of claim 21 wherein the network address comprises an IP address.

24. The method of claim 21 wherein the local physical address of each node is embedded or provided within the legacy or global physical address of the node.

25. The method of claim 21 wherein the establishing a connection-oriented VI channel comprises establishing a many-to-many work queue bindings between the first node and the one or more other nodes in the network.

26. The method of claim 21 wherein the establishing a connection-oriented VI channel comprises establishing a one-to-many work queue bindings between the first node and the one or more other nodes, respectively, in the network.

27. A method comprising:  
establishing a VI channel between a first node and each of a plurality of other nodes in the network;  
using a legacy protocol to broadcast a request message over the VI channels including a network address;  
receiving a response message including a global or legacy physical address corresponding to the network address;  
determining a local physical address corresponding to the legacy physical address based on the legacy physical address without use of a specialized address request protocol.

28. The method of claim 27 wherein the establishing a VI channel comprises establishing a many-to-many work queue bindings between the first node and the plurality of other nodes in the network.

29. The method of claim 27 wherein the establishing a VI channel comprises establishing a one-to-many work queue bindings between the first node and the plurality of other nodes, respectively, in the network.

30. The method of claim 27 wherein the local physical address is embedded within the global or legacy address of the node.

31. A method of communicating a message over a channel based network comprising:

establishing a VI channel between a first node and a second node;  
generating a message to be sent to a second node, the second node including a global or legacy physical address;  
mapping the global physical address of the second node to a local physical address of the second node;  
mapping the local physical address of the second node to a VI channel established between the first and second nodes;  
sending the message to the second node over the established VI channel.

32. The method of claim 31 wherein the local physical address is embedded in the global physical address of the second node.

33. A method of broadcasting or multicasting a message over a channel based network comprising:

- establishing a VI channel between a first node and each of a plurality of second nodes;
- generating a message to be sent ;
- sending the message from the first node to each the second nodes via each the established VI channels.

33. A method of broadcasting or multicasting a message over a channel based network comprising: